

WHAT IS CLAIMED IS:

1. A side door structure of a vehicle of which side openings are covered by a front door and a rear door, said side door structure comprising:

a door hinge located at a front end of the front door for swingably supporting the front door; and

a door hinge located at a rear end of the rear door for swingably supporting the rear door, the door hinge for the rear door including a hinge pin which is inclined such that its upper end is located inward toward a center line of a vehicle body as viewed from the front of the vehicle and toward the rear of the vehicle body as viewed from the side of the vehicle.

2. The side door structure according to claim 1, the door hinge for the front door including a hinge pin which is inclined such that its upper end is located inward toward the center line of the vehicle body as viewed from the front of the vehicle and toward the front of the vehicle body as viewed from the side of the vehicle.

3. A side door structure of a vehicle of which side openings are covered by a front door and a rear door, said side door structure comprising:

a door hinge located at a front end of the front door for swingably supporting the front door, the door hinge for the front door including a

hinge pin which is inclined such that its upper end is located inward toward a center line of a vehicle body as viewed from the front of the vehicle and toward the front of the vehicle body as viewed from the side of the vehicle; and

a door hinge located at a rear end of the rear door for swingably supporting the rear door.

4. A side door structure of a vehicle of which side openings are covered by a front door and a rear door, said side door structure comprising:

a pair of upper and lower door hinges located at a front end of the front door for swingably supporting the front door;

a pair of upper and lower door hinges located at a rear end of the rear door for swingably supporting the rear door; and

a door checker located beneath the door hinges supporting the rear door.

5. The side door structure according to claim 4, wherein each of the door hinges for the rear door includes a hinge pin which is inclined such that its upper end is located inward toward a center line of a vehicle body as viewed from the front of the vehicle and toward the rear of the vehicle body as viewed from the side of the vehicle.

6. The side door structure according to claim 5, wherein the door checker is located at a position offset inward toward the center line of the

vehicle body by a specific distance from the location of the hinge pin of each door hinge for the rear door.

7. The side door structure according to claim 4, wherein the rear door is located at the front of a wheel arch for a rear wheel and the door checker is located at a position offset toward the front of the vehicle body from the location of the hinge pins of the door hinges for the rear door.

8. A side door structure of a vehicle of which side openings are covered by a front door and a rear door, said side door structure comprising:

a door hinge located at a front end of the front door for swingably supporting the front door;

a door hinge located at a rear end of the rear door for swingably supporting the rear door; and

an assisting device for assisting a vehicle occupant in closing the rear door.

9. The side door structure according to claim 8, wherein said assisting device includes a biasing member for biasing the rear door in its closing direction from a position of its maximum opening angle.

10. The side door structure according to claim 9, wherein said assisting device including:

a door checker for holding the rear door at its open position; said

door checker having said biasing member for biasing the rear door in its closing direction constitutes part of the door checker for the rear door.

11. The side door structure according to claim 10, wherein said door checker for the rear door including:

a checker plate swingably supported at the rear end of the rear door; said checker plate having:

a stopper formed at an extreme end of the checker plate
and

a large-diameter portion formed in proximity of the stopper on the checker plate; and

a clamp which exerts a restraining force on the checker plate and said clamp being movable along the lengthwise direction of the checker plate;

wherein the clamp is positioned on the large-diameter portion of the checker plate when the rear door has reached its maximum opening angle and the further movement of the clamp towards the extreme end of the checker plate beyond the larger-diameter portion is restricted by said stopper.

12. The side door structure according to claim 8, wherein the door hinge for the rear door includes a hinge pin which is inclined such that its upper end is located inward toward a center line of a vehicle body as viewed from the front of the vehicle and toward the rear of the vehicle body as viewed from the side of the vehicle.

13. The side door structure according to claim 8 further comprising an inner door handle mounted on an inside surface of the rear door, the inner door handle being located a specific distance rearward from the front end of the rear door.

14. A method of designing a side door structure of a vehicle of which side openings are covered by a front door swingably supported by a door hinge located at a front end of the front door and by a rear door swingably supported by a door hinge located at a rear end of the rear door, said method comprising:

- a necessary physical force calculating process for calculating a necessary physical force expected to be necessary for opening and closing each of the front and rear doors based on their mechanical characteristics data obtained in a predesign stage of the individual doors;

- an available physical force calculating process for calculating an available physical force which a rear seat occupant can exert when opening and closing each of the front and rear doors;

- an analyzing process for analyzing mechanical characteristics of each of the front and rear doors needed for reducing a difference between the necessary physical force and the available physical force should any difference exists therebetween; and

- a redesign process for redesigning the individual doors, if necessary, based on the result of analysis.

15. The method of designing the side door structure of the vehicle according to claim 14, wherein said method uses an assisting force exerted by an assisting device for assisting a vehicle occupant in closing each of the front and rear doors as part of the mechanical characteristics needed for reducing the difference between the necessary physical force and the available physical force.

16. The method of designing the side door structure of the vehicle according to claim 14, wherein the assisting force exerted by the assisting device used as part of the mechanical characteristics needed for reducing the difference between the necessary physical force and the available physical force is a biasing force exerted by a biasing member for biasing each door in its closing direction from a position of its maximum opening angle.

17. The method of designing the side door structure of the vehicle according to claim 14, wherein the biasing member for exerting the biasing force which is used as part of the mechanical characteristics needed for reducing the difference between the necessary physical force and the available physical force constitutes part of a door checker for maintaining each door at a fixed position when it has reached a specific opening angle.